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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,187	07/31/2007	Toru Kimura	01115_1013	4887

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EXAMINER	
JOHNSON, CONNIE P	

ART UNIT	PAPER NUMBER
1722	

NOTIFICATION DATE	DELIVERY MODE
06/23/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@dcpatent.com

Office Action Summary	Application No.	Applicant(s)
	10/586,187	KIMURA ET AL.
	Examiner	Art Unit
	CONNIE P. JOHNSON	1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 9-14* is/are rejected.

7)☒ Claim(s) *4-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)	
1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/25/2011*.	6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 4/5/2011 have been entered and fully considered.

2. Claims 1-14 are presented.

3. Claims 2 and 10 are amended.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites, "the resin is an alkali-soluble resin dissolving an alkaline aqueous solution during development using the alkaline aqueous solution." This statement is unclear. For examination purposes, the recitation is interpreted to read, "the resin is an alkali-soluble resin that is dissolved in an alkaline aqueous solution during development."

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 9, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake et al., U.S. Patent Publication No. 2002/0136979 A1.

Miyake teaches a resist material on a substrate with an upper and lower recording layer. The upper recording layer comprises an alkali-soluble resin (page 9, [0087]). The upper recording layer may also comprise a solvent (page 16, [0190-0191]). The solvents comprise propanol, which is a monovalent solvent with 6 or less carbon atoms as in instant claims 12 and 13 (page 9, [0082]). Although the upper recording layer may comprise propanol as a solvent, Miyake does not teach propanol as preferred over other solvents in the upper recording layer. However, it would have been obvious to one of ordinary skill in the art to use propanol as the solvent in the upper recording layer because Miyake teaches propanol is suitable for dissolving the components of the upper recording layer to form a liquid coating (page 9, [0081]). The recitation in claim 1, "not causing intermixing with the photoresist film" is intended use and does not add positive recitation to the claim (MPEP 2106). The recitation in claim 1, "for being applied to coat on a photoresist film when using an immersion exposure device which is irradiated through water provided between a lens and the photoresist film...being dissolved in a subsequent developer" is a product by process limitation. Product by process claims are not limited to the manipulations of recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art,

the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (MPEP 2113). The recitation in claim 1, "forming a water-stable film during irradiation" is intended use and does not add positive recitation to the claim. The recitation in claim 9, "dissolving an alkaline solution during development using the alkaline aqueous solution" is intended use and does not add positive recitation to the claim (MPEP 2106).

8. Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake et al., U.S. Patent Publication No. 2002/0136979 A1 in view of Endo et al., U.S. Patent Publication No. 2004/0224525 A1.

Miyake teaches a method of forming a photoresist pattern. The photoresist comprises an upper recording layer as relied upon above. Miyake does not teach forming a pattern by immersion exposure with water.

Additionally, Endo teaches an immersion exposure method for a resist wherein the resist material is on a substrate and comprises a resist layer and a topcoat layer. The pattern is formed by exposing the resist material to irradiation wherein water is used as the immersion fluid on top of the topcoat layer (page 4, [0074]). The resist is developed to form the pattern (pages 2-3, [0033-0035]). It would have been obvious to one of ordinary skill in the art to form the resist pattern of Miyake by immersion exposure because immersion exposure is well known to improve resolution of the pattern (page 1, [0003]).

9. Claims 1, 2, 3, 9, 10, 11, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsumoto et al., U.S. Patent Publication No. 2003/0118942 A1.

Mitsumoto teaches a composition comprising an alkali-soluble resin and a solvent. The alkali-soluble resin comprises a fluoroalkyl group in the side chain of the resin (pages 11-13) (claims 2, 3 and 11).

The fluorinated resins are alkali-soluble and capable of being dissolved in an alkaline aqueous solution during development (claim 9).

The solvent comprises methanol, ethanol and propanol (page 17, [0167]). The solvents, such as methanol, ethanol and propanol are monovalent alcohols with 6 or less carbon atoms as presently claimed (claims 12 and 13). Although the solvents include monovalent alcohols, Mitsumoto does not expressly teach the monovalent alcohols with 6 or less carbons as preferred over the other solvents mentioned in paragraph [0167]. However, it would have been obvious to one of ordinary skill in the art to use solvents, such as methanol, ethanol or propanol over the other solvents because Mitsumoto teaches the monovalent alcohols as suitable solvents for forming a resist coating on the support.

With regards to the recitation in claims 1, 2 and 10, " which is irradiated through water provided between a lens and the photoresist film...being dissolved in a subsequent developer" is a product by process limitation. The phrase "for being applied to coat on a photoresist" is drawn to intended use and has no patentable weight on the composition. Claim 1 is drawn to a composition, not its intended use. Product by process claims are not limited to the manipulations of recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-

process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (MPEP 2113). Further, "not causing intermixing with the photoresist film" is intended use and does not add patentable weight to the claim (MPEP 2106).

The recitation in claim 1, "forming a water-stable film during irradiation" is intended use and does not add positive recitation to the claim. The recitation in claim 9, "dissolving an alkaline solution during development using the alkaline aqueous solution" is intended use and does not add positive recitation to the claim. The recitation in claim 10, "forming a water stable film during irradiation and being dissolved in a subsequent developer" is intended use and does not add patentable weight to the claim. The recitation, "dissolving an alkaline aqueous solution during development using the alkaline aqueous solution" is intended use and does not add patentable weight to the claim.

With regards to claim 10, the alkali-soluble polymer comprising the fluoroalkyl group also has a carboxyl group as presently claimed (pages 11-13).

Response to Arguments

10. Applicant's arguments filed 4/5/2011 have been fully considered but they are not persuasive.

11. Claims 2, 3 and 10-11 were objected to in the previous office action. The objection previously noted is withdrawn. However, after further consideration the claims are rejected over Mitsumoto et al.

12. Applicant argues that there is nothing intrinsically wrong with defining something by what it does rather than what it is in drafting patent claims (applicant cites *In re Swinehart*). Further, that the Examiner has offered no basis upon which to predicate the determination that the composition disclosed by Miyake is even capable of being applied to coat a photoresist film when using an immersion exposure device as specified in claim 1, and no such basis is apparent.

Applicant may certainly include what the claim does instead of what it is. However, applicant's recitation amounts to intended use and product by process and as such is not afforded any patentable weight unless applicant shows the structure (composition) is different when used in this process. Perhaps applicant should consider method claims as it appears that the method steps are of importance to applicant. The recitation in claims 1, 2 and 10, "for being applied to coat on a photoresist film when using an immersion exposure device" is intended use. The phrase "which is irradiated through water provided between a lens and the photoresist film...being dissolved in a subsequent developer" is a product by process limitation. The product by process limitations are not limited to the manipulations of the recited steps, only the structure implied by the steps (MPEP 2113). Applicant merely claims a composition comprising an alkali-soluble resin and a monovalent alcohol resin. Miyake and Mitsumoto both teach the composition. Therefore, the end product in the prior art and the present invention is the same and the limitation. Further, the composition of Miyake is applied to a photoresist film. Therefore, Miyake meets the claim regardless.

13. Applicant argues that the position that one of ordinary skill in the art would have been led to employ "immersion exposure in the composition of Miyake because

immersion exposure is well known to improve resolution of the pattern" lacks the requisite factual basis.

Endo teaches immersion lithography is an improvement over the conventional method of exposure and development by further refining patterns as opposed to patterns formed by conventional lithography (page 1, [0003]). Endo specifically teaches immersion lithography is an improvement over the conventional method. Therefore, it is clear that one of ordinary skill would be directed to use the method of Endo over the lithography method in Miyake to form a patterned resist. So, the teaching of Endo is factual basis for modifying the method of Miyake.

14. Applicant argues that Endo does not teach water as the immersion liquid.

Endo is relied upon for teaching immersion lithography over conventional lithography, wherein the immersion fluid is water. Endo teaches water with a small amount of acid as the immersion liquid (page 4, [0077]). Additionally, on page 3, [0035]), Endo teaches water as the immersion fluid on the resist film. Endo further teaches that the quantity of acid in the water is small and therefore, the unexposed portion of the resist film remains soluble in an alkaline developer. Endo also notes the water-soluble film will never dissolve as in paragraphs [0030], [0032] and [0034]. The water soluble film that applicant argues is a different embodiment in the Endo reference and is not used in the rejection.

15. Claims 4-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CONNIE P. JOHNSON whose telephone number is (571)272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CONNIE P. JOHNSON/
Examiner, Art Unit 1722

/Cynthia H Kelly/
Supervisory Patent Examiner, Art Unit 1722